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Tahmasebi et al.

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[54] **SIX-DEGREE-OF-FREEDOM PARALLEL "MINIMANIPULATOR" WITH THREE INEXTENSIBLE LIMBS**

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[58] **Field of Search** 74/469, 471 XY, 479 R, 479 B, 479 BW, 479 PF, 479 PH, 479 MF; 901/14, 901/15, 16, 17, 18, 19, 27

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[57] **ABSTRACT**

A Six-Degree-of-Freedom Parallel-Manipulator having three inextensible limbs for manipulating a platform is described in which the three inextensible limbs are attached via universal joints to the platform at non-collinear points. Each of the inextensible limbs is also attached via universal joints to a two-degree-of-freedom parallel driver such as a five-bar linkage, a pantograph, or a bidirectional linear stepper motor. The drivers move the lower ends of the limbs parallel to a fixed base and thereby provide manipulation of the platform. The actuators are mounted on the fixed base without using any power transmission devices such as gears or belts.

11 Claims, 7 Drawing Sheets

